



# City of Suffolk Fire and Rescue Special Operations Map Toolkit

---

Captain Jim Judkins, Emergency Management  
Coordinator, City of Suffolk

Bob Oblinsky, GIS Manager, City of Suffolk

Jason Cope, Software Development Manager,  
Geographic Technologies Group



# Agenda

---

- Identification of Need
- Hazardous Materials Module
- Search and Rescue Module
- Lessons Learned
- Questions and Answers

# The Full Spectrum of Incident Management

## Pre-Incident



## Incident



## Post-Incident



Prevention

Preparedness

**Response**

Recovery

Mitigation



# Identification of Need

---

- **Copeland Road Wild Land Fire**
  - 90 acre wildfire
  - 4 engine companies and VA DOF crews responded
  - 6 – 8 hours event duration
  - First time GIS present during incident
    - Situational awareness enhanced via aerials and GIS data being available
    - Identified need for easy to use map interface to document event and track resources
    - Onsite analysis of size of event, impact to citizens
- **2007 Dismal Swamp Search**
  - Lost Hiker – 911 Telephone Call Triangulated gave Initial Position
  - 6 – 8 hour Search and Rescue Operation
  - Missed Opportunity to leverage GIS
- **Initial Specifications for Toolkit Identified During Critique of Both Events**



# Identification of Need

---

- Special Operations Requirements
  - Maintain Situational Awareness
  - Locations of Special Populations
  - Scope and Potential Impact of Event
  - Resource Accountability
  - Event Documentation / Archive
  - Support of After Action Critique – Hot Wash



# Identification of Need

---

- Resulting Guidelines for Toolkit Development
  - Map Driven
  - Easy to Use
    - Big Buttons
    - Night Visibility
  - Up to Date Mapping at all times
  - Document and Archive Event
  - Leverage GPS Technology to Maximum Extent
  - Provide Accountability



# Solution

---



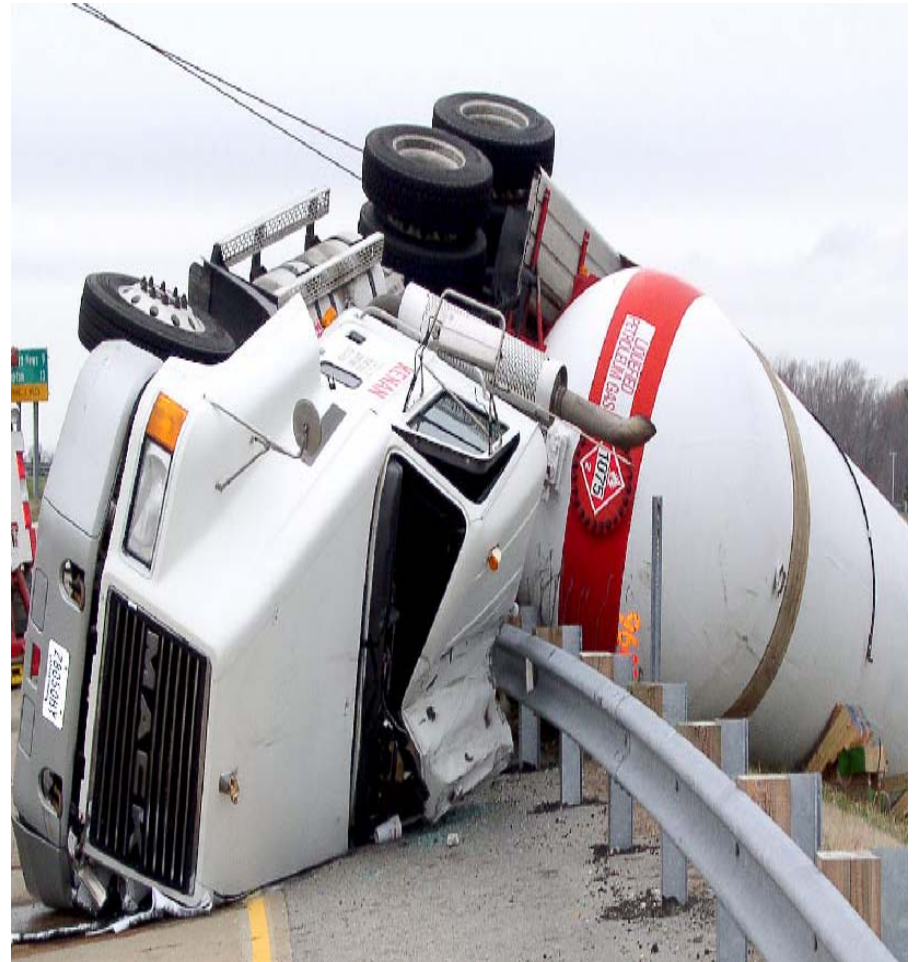
# Solution

---

- Suffolk Fire Special Operations Toolkit
  - Customized Application
    - ArcServer Based
    - Extension of GTG GeoBlade Technology
    - Hazardous Materials Plume Analysis
    - Search and Rescue



# Hazardous Materials Module





# Hazardous Materials Module

---

- Supports simple and complex plume creation
  - DOT Emergency Response Guide - Simple
  - Gaussian Plume Generation Model - Complex
    - Primary Plume Creation
    - Secondary Plume Support
    - Tertiary Plume Support
    - Shifting Winds Support
      - Ability to rerun plume with updated information at any time during event
      - Ability to switch back and forth between plumes
- Full Event Documentation Supported
- Facilitates Change of Command Briefings

# Hazardous Materials Module

- Material
- Wind Speed / Direction
- Size of Release
- Time of Day

The image shows a software window titled "Plume Analysis". It has two tabs: "Fire Conditions" and "Wind Conditions". The "Wind Conditions" tab is active. Inside this tab, there is a circular diagram with a vertical line labeled "N" at the top and a horizontal line labeled "E" on the right. The bottom of the circle is labeled "S" and the left side is labeled "W". Below the diagram, there is a text box labeled "Wind Direction:" followed by a numeric input field containing the value "89.3". At the bottom of the window, there are two more input fields: "ISO Zone(ft):" with a value of "400" and "Downwind Distance(mi):" with a value of "0.0". Both of these fields have small up and down arrows next to them. At the very bottom, there are two buttons: "Calculate" on the left and "Cancel" on the right.

# Hazardous Materials Module

- Generate Plume
- Identify Special Populations
  - Schools
  - Hospitals
  - Assisted Living
- Identify Critical Facilities
  - Emergency Shelters
  - Emergency Operations Center





# Hazardous Materials Module

---

- Ability to Track Response
  - Analyze Plumes
  - Analyze Effects of Shifts in Wind Direction or Intensity
  - Ability to Document Response Actions
    - Access Control Locations
    - Evacuation Decision/Order/Progression Tracking
    - Responder Resource Assignments
- Ability to Replay Event
  - Move Forward / Move Back through Trackable Events
  - Visualize Response Resource Effectiveness via Map Interface
  - Training Tool via Continued Critiques

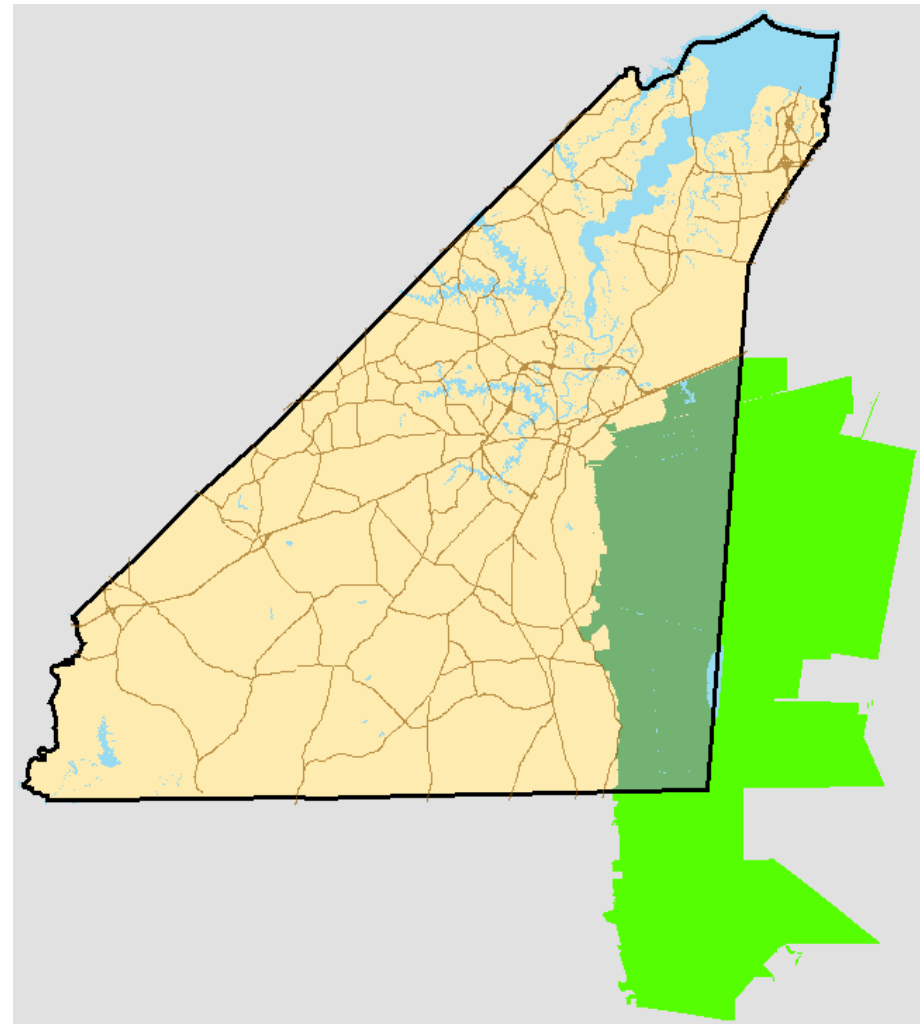


# Search and Rescue Module



# Search and Rescue Module

- Great Dismal Swamp Wildlife Refuge
  - 16.75 Sq. Miles of area
  - 5.25 Sq. Miles within Suffolk
  - Site of numerous searches in past 20 years
  - Dense tree cover, thick underbrush
  - Slow moving, long searches
  - Several teams spread out throughout search area
- "Finding the victim is the easy part"





# Search and Rescue Module

---

- Support Multiple Search Types
  - Hasty Search
  - Grid Search
  - Radial Search
  - Project Lifesaver Search
- Compiles Full Incident Documentation
- Provides Play Back Capabilities
  - Move Forward/ Move Back through Trackable Events
- Supports Change of Command Briefings



# Search and Rescue Module

- Initiating Search
  - Personal Info
  - Point Last Seen
  - Health Status
- Support Import of Photo
- Printing Support

The screenshot shows a software window titled "Missing Person Info". In the top right corner, it displays "CASE#: 5866" in red text. Below the title bar, there is a "Search Status:" label followed by a dropdown menu currently set to "OnGoing". The main section of the form is titled "Missing Person General Info" and contains several input fields: "First Name:" with the value "John", "Last Name:" with "Doe", "M.I.:" with "W", and "Gender:" with a dropdown set to "Male". Below these are "Address: [ex. 123 Main St.]" with "1202 Parkway Drive", "Apt#:" with an empty field, "City:" with "Suffolk", and "State:" with a dropdown set to "VA". Further down are "Phone#: [ex. 123-456-7890]" with "555-666-7777", "HealthStatus:" with a dropdown set to "Fair", and "Age:" with a field containing "50". At the bottom of the form is a "Notes:" section with a text area containing the text "Wife reported that John did not come home after work." At the very bottom of the window are two buttons: "Save" and "Cancel".

Missing Person Info			
Search Status: OnGoing			CASE#: 5866
Missing Person General Info			
First Name:	Last Name:	M.I.:	Gender:
John	Doe	W	Male
Address: [ex. 123 Main St.]		Apt#:	City: State:
1202 Parkway Drive			Suffolk VA
Phone#: [ex. 123-456-7890]	HealthStatus:	Age:	
555-666-7777	Fair	50	
Notes:			
Wife reported that John did not come home after work.			
Save		Cancel	

- ## ■ Accountability

**Add Team**

Team Name:

Add Member

First Name:

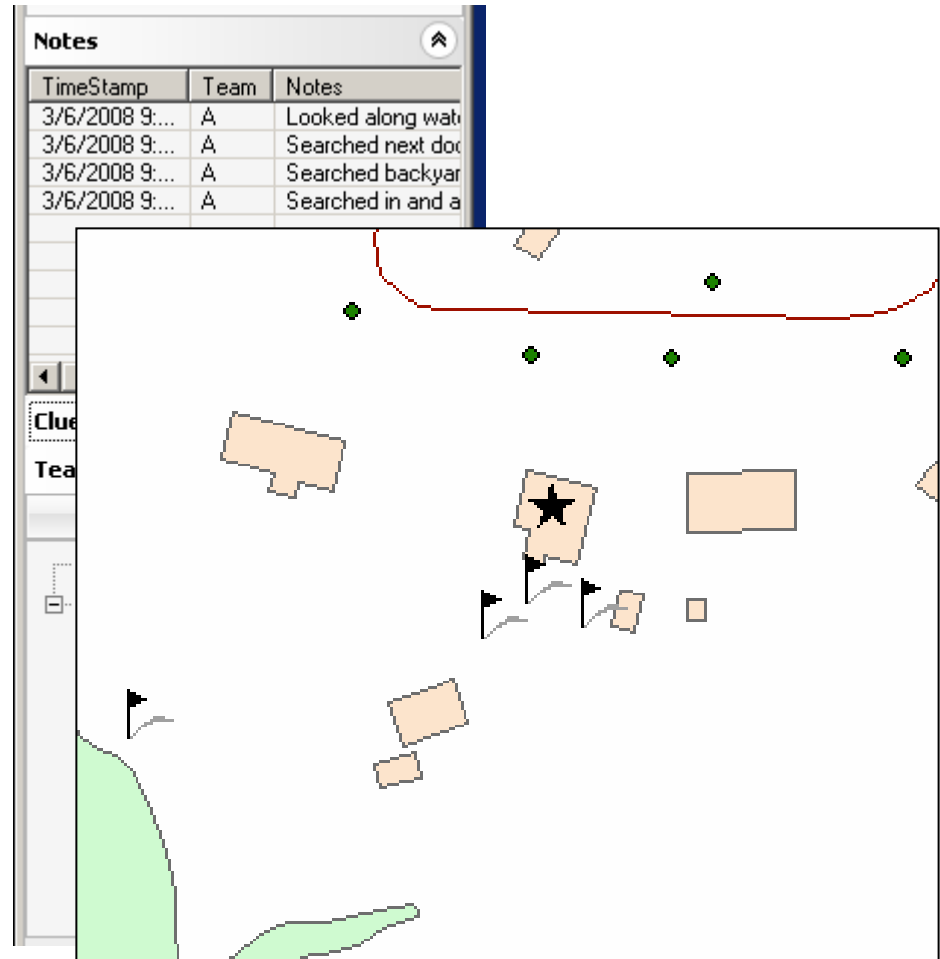
Last Name:

Team Members

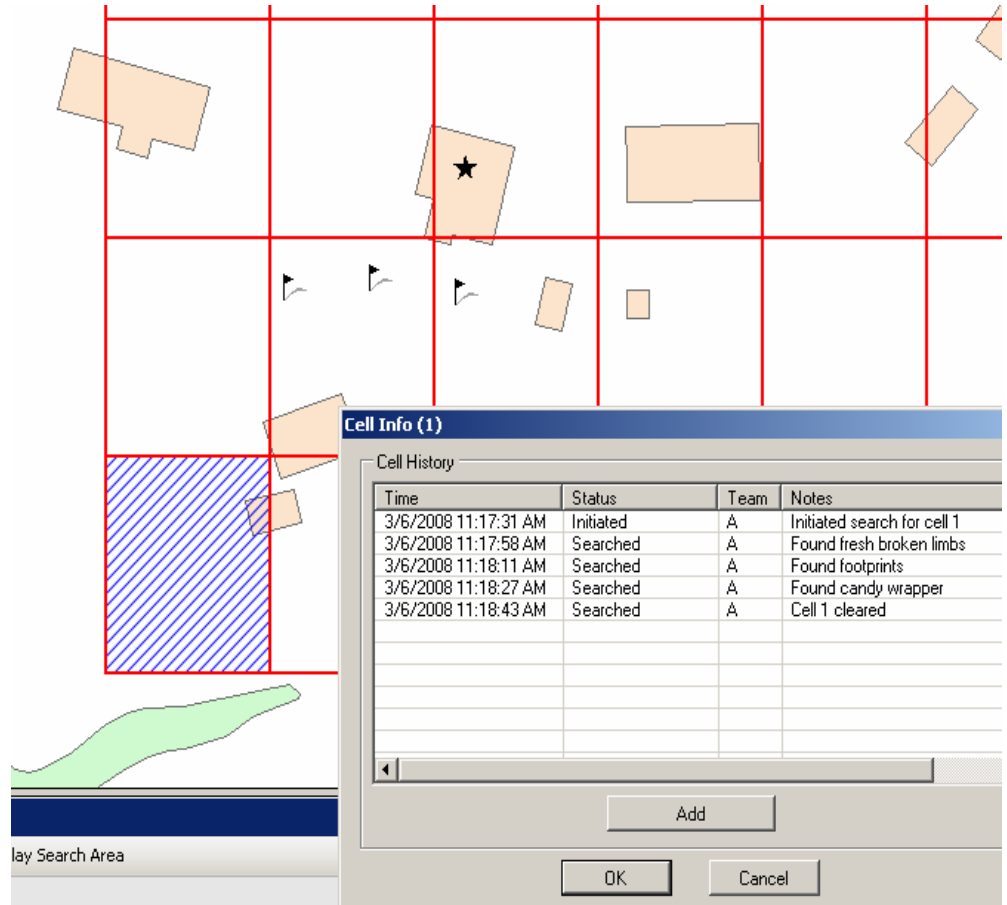
First Name	Last Name	TimeStamp
Jimmy	Buffet	3/6/2008 9:04:...
Elvis	Presley	3/6/2008 9:04:...

# Search and Rescue Module

- Track Clues
- Document Team Locations (PAR Checks)
- GPS Locations
- Document Search Results



- 1





# Search and Rescue Module

---

- Ability to Track Response
  - Varying Search Types
  - Ability to Document Search Actions
    - Resource Accountability / Tracking
    - Clue Management / Tracking
    - Results Documentation / Archive
- Ability to Replay Event
  - Move Forward / Move Back through Trackable Events
  - Visualize Resource Effectiveness via Map Interface
  - Training via Continued Critiques



# Lessons Learned

---



# Lessons Learned

---

- GIS Staff needs to keep Emergency Management informed of potential
  - Hardware, Software and Data
- Emergency Managers need to engage GIS staff in supporting daily operations
  - Allow GIS staff to get their boots wet
- Do not be afraid of stepping out of the box
  - Generate new ideas
- Its always easier to beg forgiveness, then to beg permission



# Questions and Contact Info

---

- Any questions?
- Bob Oblinsky - 757-514-7696
- Captain Jim Judkins - 757-514-7658
- Jason Cope - 919-759-9214

**GTG has booth in vendor area for additional questions**